

# PATENT ABSTRACTS OF JAPAN

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(54) DISK SHAPED RECORDING MEDIUM AND DISK REPRODUCING  
DEVICE USING THE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To speedingly and surely comprehend the contents of the various recorded picture information by recording the condensed version of the image information in a riffle through track section and selectively reproducing and displaying the actual image information and the riffle through information.

SOLUTION: On a video disk CD2, provision is made for a main track section 2a in which actual image information is recorded and a riffle through track section 2b in which riffle through information is recorded. The disk CD2 is set on a disk drive 1a of a device main body 1. When a reproducing instruction is inputted from a selection deciding input means 4, a system control section 1d sets each section in a reproducing mode and the reproducing control of the drive 1a is conducted by a drive control section 1e. Then, the picture information reproduced from the disk CD2 is displayed by a display device 3.

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## CLAIMS

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[Claim(s)]

[Claim 1] The Maine truck section as a record section of two or more real image information of the various contents of information, The PARAPARA truck section showing each epitome, outline, etc. of this real image information as a record section of the Para Para information is prepared. It is brief packet data of the fixed length who this real image information was segmented according to the content, and summarized the content of this partition that this Para Para information corresponds for every partition of this real image information, and corresponds. this Para Para information on the packet corresponding to the partition and this partition of this real image information -- eclipse \*\*\*\*\* with an address mapping -- the disk-like record

medium characterized by things.

[Claim 2] In the disk regenerative apparatus using a disk-like record medium according to claim 1 The change to the playback mode of said Para Para information from said PARAPARA truck section of said real image information from said Maine truck section from a playback mode It is what moves playback from said partition of said real image information reproduced just before this change to this partition at the packet of eclipse \*\*\*\*\* Para Para information with an address mapping. The disk regenerative apparatus characterized by switching from said real image information to it as the content of information follows said Para Para information mostly.

[Claim 3] In the disk regenerative apparatus using a disk-like record medium according to claim 1 The change to the playback mode of said real image information from said Maine truck section of said Para Para information from said PARAPARA truck section from a playback mode It is what moves playback from the packet of said Para Para information reproduced just before this change to said partition of eclipse \*\*\*\*\* real image information with an address mapping at this packet. The disk regenerative apparatus characterized by switching from said Para Para information to it as the content of information follows said real image information mostly.

[Claim 4] In a disk-like record medium according to claim 1, while said real image information is mutually connected by the predetermined transition tree structure The menu image information to which the selections for making selectable two or more predetermined real image information for every branch point of this transition tree structure are set is prepared, and it is recorded on said Maine truck section. And while said Para Para information is also mutually matched by this transition tree structure corresponding to this transition tree structure of said real image information The disk-like record medium characterized by what the menu image information of the content according to this menu image information is prepared for every branch point of this transition tree structure, and is recorded on said PARAPARA truck section.

[Claim 5] The disk regenerative apparatus characterized by enabling setting out of the Para Para playback mode which carries out the repeat display of

said Para Para information connected with said transition tree structure, and said menu image information one by one in the predetermined sequence which was able to be decided beforehand in the disk regenerative apparatus using a disk-like record medium according to claim 4.

[Claim 6] The disk regenerative apparatus characterized by the thing which usually reproduce and display mostly said real image information corresponding to said Para Para information by which the repeat display was carried out at this directions event, or said menu image information from said Maine truck section with directions of a playback mode among said Para Para playback mode in a disk regenerative apparatus according to claim 5, and which is usually shifted to a playback mode.

[Claim 7] It is the disk regenerative apparatus characterized by differing according to the number of selections with which the display period of said menu image information in said Para Para playback mode is set as this menu image in the disk regenerative apparatus according to claim 6.

[Claim 8] The disk regenerative apparatus characterized by reproducing and displaying this predetermined real image information to these selections specified by specifying the selections of the predetermined real image information set as this menu image information at the time of the repeat display of said menu image information from said Maine truck section by said Para Para playback mode in a disk regenerative apparatus according to claim 6 or 7.

[Claim 9] The disk regenerative apparatus characterized by not reproducing said Para Para information corresponding to the real image information in which the repeat display was carried out in the disk regenerative apparatus according to claim 8 by assignment by said menu image information by which the repeat display was carried out by said Para Para playback mode by the Para Para playback mode on and after next time.

[Claim 10] The disk regenerative apparatus characterized by shifting to the Para Para playback mode which reproduces and displays mostly said Para Para information corresponding to said real image information which carries out the repeat display of the image information from said Maine truck, and by which the repeat display was usually carried out at this directions event with

directions of the inside of a playback mode, and said Para Para playback mode, or menu image information, or said menu image information from said PARAPARA truck section in a disk regenerative apparatus according to claim 5.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the disk-like record medium which makes it possible to use a video CD, CD-ROM, and the disk-like record medium of DVD (digital video disc) as a publication etc., and its regenerative apparatus, and relates to the disk regenerative apparatus which enabled it to give the same function as the publication according this disk-like record medium to the conventional print media especially.

[0002]

[Description of the Prior Art] Conventionally, as a publication which carried the information on various genres, such as an occurrence of a world, a tale (novel) and various introduction, and a publicity announcement, they were print media, such as a journal which printed those reports, photographs, etc.

[0003] Disk-like record media, such as DVD which, on the other hand, recorded the video CD and CD-ROM which could be made to carry out record playback also of the video signal, and the digital video signal on the large capacity nature paying attention to CD (compact disk) developed as a record medium of speech information, such as the so-called music, are developed, and it has been observed as a record medium of image information.

[0004] Since the above video CDs can record mass image information on a compact optical disk or a compact magneto-optic disk, they can consider the utilization as a publication of the various above information. The same is said of CD-ROM or DVD. Thus, when using as a publication, it not only records

various introduction as image information, but it can make recording information into animation information, and a user can grasp the content of the introduction to accuracy more.

[0005] and this disk-like record medium -- compact -- moreover -- various kinds -- since a lot of information will be stored, carrying does not take time and effort but there is an advantage that various information can moreover be acquired from the disk of one sheet very so much.

[0006]

[Problem(s) to be Solved by the Invention] However, neither in a video CD nor DVD, unless it reproduces this with a regenerative apparatus unlike a journal etc., the content of the information currently recorded can be known. Although that outline understands a user for what kind of content the information on is written there at a glance with a journal by seeing a table of contents, or turning over with Para Para, trying to pass and carrying out, considering this point In a video CD or DVD, if the information currently recorded there is not reproduced briefly, in order not to know what kind of information is recorded but to understand it, time amount will be taken dramatically. This will pose indeed the problem that time and effort and time amount for it to understand the content are very big, if the information recorded on a video CD or DVD increases.

[0007] Of course, although it has the rapid-traverse regenerative function, the one content of a report can be seen by this in a short time and the outline of the content of a report can be known, the image in rapid-traverse playback has a dramatically quick motion (change), it will be hard to see and an eye will be tired with the regenerative apparatus of this disk-like record medium. Moreover, there is also a problem that voice is unreproducible.

[0008] The object of this invention is to offer the disk regenerative apparatus using the disk-like record medium and it which made it possible to solve this problem, and to grasp the content of the various image information currently recorded promptly and exactly so that \*\* may also turn over a journal etc. with Para Para and may look at it.

[0009]

[Means for Solving the Problem] In order to attain the above-mentioned object,

the image information (the Para Para information) of the compaction version showing the outline and outline is recorded by the PARAPARA truck section on every [ which is recorded on the Maine truck section there ] image information (real image information), and this invention can be made to carry out the repeat display of this real image information and the Para Para information to a disk-like record medium selectively. In this case, it switches as the repeat display of real image information, and the repeat display of the Para Para information, and is made for the informational content to continue mostly then.

[0010] Moreover, in the disk-like record medium [ a disk-like record medium ] which this invention can operate [ in\_which of classification filing of each fruit image information is carried out in the form of a transition tree structure, and it is recorded / interactive ], the sequential repeat display of the Para Para information over these real image information is made to be carried out by sequential [ which is decided in this transition tree structure / predetermined ]. In this case, menu image information with the item which chooses two or more real image information is set to each branch point in a transition tree structure, and repeat display sequence of the Para Para information is performed in the order the selections in this menu image were beforehand decided to be.

[0011] A switch with the Para Para playback mode which reproduces the Para Para information and menu image information from the PARAPARA truck section, and the usual playback mode which reproduces real image information and menu image information from the Maine truck section is possible, and it is made for the content of information to almost continue at the change event.

[0012] Moreover, if the selections of a request of this menu image are specified when the repeat display of the menu image is carried out by the Para Para playback mode, it will become the usual playback mode as which the image information to these selections is reproduced and displayed from the Maine truck. Thereby, retrieval of desired real image information can also be performed using the Para Para playback mode.

[0013]

[Embodiment of the Invention] Hereafter, a drawing explains the operation gestalt of this invention.

[0014] Drawing 1 is the block diagram showing the configuration of the 1st operation gestalt of the disk regenerative apparatus by this invention. In 1, the body of equipment and 1a the decryption section and 1c for a disk drive and 1b A D-A (digital-to-analog) converter, 1d -- for memory and 1e, as for a video CD and 3, a drive control section and 2 are [ the system control section and 1d1 / CPU (central-process unit) and 1d2 / displays, such as CRT and liquid crystal, and 4 ] selection decision input means.

[0015] Although the disk-like record medium used for this disk regenerative apparatus is explained as a video CD below, you may be CD-ROM, and DVD and other disk-like record media.

[0016] Disk drive 1a for the body 1 of equipment to reproduce the set video CD 2 in this drawing, For example, decryption section 1b which decrypts and carries out data decompression of the playback image information signal of the video CD 2 by which data compression coding was carried out by MPEG specification, The D-A converter which changes this decrypted digital image information signal into the image information signal of an analog, 1d of system control sections which are equipped with CPU1d1, memory 1d2, etc., incorporate the data from the selection decision input means 4 etc., and a command, and control each part within the body 1 of equipment according to this data and command, It operates according to the control signal from 1d of system control sections, and consists of drive control-section 1e which carries out control actuation of the disk drive 1a.

[0017] When a video CD 2 is set to disk drive 1a of the body 1 of equipment and a playback command is inputted from the selection decision input means 4, 1d of system control sections sets each part as a playback mode, and they make drive control-section 1e perform playback control of disk drive 1a.

Decryption processing is carried out by this by decryption section 1b, and the image information signal reproduced from the video CD 2 is changed into the image information signal of an analog by D-A conversion section 1c, and is supplied to a display 3. Thereby, in an indicating equipment 3, the image information reproduced from the video CD 2 is displayed as a still picture or



an animation.

[0018] Drawing 2 is drawing showing 1 operation gestalt (here video CD 2) of the disk record medium by this invention used for the disk regenerative apparatus shown in drawing 1 , 2a is the Maine truck section and 2b is the PARAPARA truck section.

[0019] In drawing 2 , Maine truck section 2a on which real image information is recorded, and PARAPARA truck section 2b on which the Para Para information is recorded are prepared in the video CD 2. In addition, although PARAPARA truck section 2b was prepared in the bore side of a video CD 2 to Maine truck section 2a, you may make it also receive an outer-diameter side in a middle field by this example. In addition, as real image information, introductory information, such as a ticket and an event thing, is [ like a film or a TV program ] sufficient, and the animation information on various genres can be recorded on a video CD 2 as real image information.

[0020] Drawing 3 is the top view showing roughly the control unit of the remote controller as one example of the selection decision input means 4 in drawing 1 , 4a is "playback" carbon button and 4b is the "Para Para" carbon button. Of course, for remote control 4, it cannot be overemphasized like the conventional thing that manual operation buttons, such as a ten key and a "power-source" carbon button, are prepared.

[0021] Drawing 4 is drawing showing a record format with the truck (Maine truck) with which the real image information in Maine truck section 2a in a video CD 2 is recorded, and the truck (PARAPARA truck) by which the Para Para information on PARAPARA truck section 2b is recorded.

[0022] Drawing 4 (c) shows some Maine trucks with which real image information is recorded, and drawing 4 (b) shows some PARAPARA trucks with which the Para Para information over the field shown in this drawing 4 (c) is recorded.

[0023] In drawing 4 (c), real image information is classified into the field of A, B, C, D, E, and .... according to the content of information, for example. The compaction information a, b, c, d, and e and .... by which die length for about 1 second which expresses the epitome for each [ these ] partition of every was packet-ized are created. These are recorded on a PARAPARA truck in

the order corresponding to the partitions A, B, C, D, and E in real image information, and ...., and it considers as PARAPARA truck section 2b ( drawing 2 ) as shown in drawing 4 (b).

[0024] Here, although the header (not shown) on which the address which shows the record location for every fixed time amount of real image information was recorded is prepared by Maine truck shown in drawing 4 (c), the starting address in Partitions A, B, C, D, and E and .... is made into m0, m1, m2, m3, m4, and .., respectively so that it may illustrate. Moreover, starting addresses p0, p1, p2, p3, and p4 and .. are recorded on the header ( drawing 4 (a)) prepared in the head at each packets a, b, c, d, and e and every .... also by PARAPARA truck shown in drawing 4 (b).

[0025] Furthermore, the partitions A, B, C, D, and E in drawing 4 (c) corresponding to these packets a, b, c, d, and e and .. of each packets a, b, c, d, and e shown in drawing 4 (b) and ...., the starting addresses m0, m1, m2, m3, and m4 of .., and .. are also recorded on the header ( drawing 4 (a)). For example, the starting address m0 of the partition A in drawing 4 (c) corresponding to this packet a is also recorded on the header of Packet a with the starting address p0 of this packet a. Thereby, the recording start location of the Para Para information on PARAPARA truck section 2b and the recording start location of each partition of the real image information in Maine truck section 2a are matched.

[0026] Although not illustrated to drawing 2 , and if control information, such as information which specifies for example, Maine truck section 2a and PARAPARA truck section 2b, is recorded for example, on the innermost diameter of a video CD 2 and this video CD 2 is set to disk drive 1a in drawing 1 , CPU1d1 of 1d of system control sections calls this control information from this video CD 2, and stores it in memory 1d2.

[0027] if "playback" carbon button 4a ( drawing 3 ) of remote control 4 is operated after an appropriate time, in 1d of system control sections, CPU1d1 carries out reading appearance of the control information according to this actuation from memory 1d2, and delivery and this drive control-section 1e will control disk drive 1a to drive control-section 1e, and will carry out the repeat display of the real image information to it from Maine truck section 2a

( drawing 2 ) of a video CD 2. This playback mode is usually hereafter made a playback mode.

[0028] moreover, if "Para Para" carbon button 4b ( drawing 3 ) of remote control 4 is operated, in 1d of system control sections, CPU1d1 carries out reading appearance of the control information according to this actuation from memory 1d2, and delivery and this drive control-section 1e will control disk drive 1a to drive control-section 1e, and will carry out the repeat display of the Para Para information to it from PARAPARA truck section 2b ( drawing 2 ) of a video CD 2. In this repeat display, the outline of real image information will be displayed so that \*\* may also turn over a journal with Para Para and may look at it. Therefore, in this playback mode (henceforth the Para Para playback mode), the content of each fruit image information currently recorded on the video CD 2 can be known roughly.

[0029] In this case, it is outputted with outline presenting of real image information by recording speech information with the Para Para information by the loudspeaker which does not illustrate the voice which suited that outline display, either. Therefore, only by the image, the content of an outline of real image information (outline) can be recognized also from voice, and can be grasped more to accuracy.

[0030] Moreover, if "playback" carbon button 4a of remote control 4 is operated during playback (Para Para playback mode) of PARAPARA truck section 2b It becomes a usual playback mode from the record location of the real image information in Maine truck section 2a corresponding to the playback location of the Para Para information at that time mostly beginning to reproduce this real image information. Moreover, if "Para Para" carbon button 4b of remote control 4 is operated during playback (usually playback mode) of real image information It becomes the Para Para playback mode which begins to reproduce this Para Para information from the record location of the Para Para information on PARAPARA truck section 2b corresponding to the playback location of the real image information at that time mostly.

[0031] While reproducing the Para Para information from the packet b of a PARAPARA truck, supposing "playback" carbon button 4a ( drawing 3 ) is operated in drawing 4 In 1d ( drawing 1 ) of system control sections, it detects

that there was actuation of this "playback" carbon button 4a. The address m1 in the Maine truck corresponding to this is detected from the starting address p1 of this packet b read with playback initiation of this packet b, and control information is sent to drive control-section 1e. Thereby, this drive control-section 1e controls disk drive 1a, and switches from the address m1 of the Maine truck to the usual playback mode which performs playback. therefore -- although the image information by which a repeat display is carried out to real image information switches from the Para Para information -- the -- it switches, and the content of information is continuing mostly at the event, and it will not become unnatural.

[0032] While reproducing [ for example, ] real image information from the partition C of the Maine truck, supposing similarly "Para Para" carbon button 4b ( drawing 3 ) is operated, in 1d of system control sections If it detects that there was actuation of this "Para Para" carbon button 4b and the header of the head in the following partition D is reproduced from a video CD 2 after that, the address p3 in the PARAPARA truck currently recorded there will be detected, and control information will be sent to drive control-section 1e. Thereby, this drive control-section 1e controls disk drive 1a, and switches to playback from the address p3 of a PARAPARA truck. therefore -- although the image information by which a repeat display is carried out to the Para Para information switches from real image information -- the -- it switches, and the content of information is continuing mostly at the event, and it will not become unnatural.

[0033] Thus, since it can switch to the Para Para information from real image information, or real image information from the Para Para information at arbitration and the content of information in the change event is moreover continuing, To make the middle of the real image information currently reproduced into the Para Para playback mode, and fly it Can grasp the flown content as an outline roughly, and Since it knows the outline before it in being able to find out easily a part to see as real image information again to accuracy, and finding out the part and switching to the repeat display of real image information, sense of incongruity is not given to a user.

[0034] Here, as a partition of real image information, in the important part of

the story which it expresses, a partition is made fine, and a partition is enlarged, and the outline and epitome of each partition are created and it considers as the packet of the same die length as 3 seconds from about 1 second by the unimportant part. Thus, what is necessary is just to make it, thin out the frame or the field of an image information signal of the partition in the compressibility according to the die length of the partition for example, in case a partition is changed into a packet. Therefore, in drawing 4 (b) and (c), infanticide of a frame or the field is made at the small rate of infanticide in Partition B, and, as for Packet b, infanticide of a frame or the field is made at the large rate of infanticide in Partition C, as for Packet c.

[0035] When carrying out the repeat display of the Para Para information by doing in this way, unlike the conventional rapid-traverse playback, the place used as the point of a story is displayed in detail, and the other place will be displayed from a coarse content and can grasp the content of the story more clearly.

[0036] As mentioned above, although this 1st operation gestalt operates, this actuation is summarized by drawing 5 and it explains.

[0037] In this drawing, if a video CD 2 is set to disk drive 1a ( drawing 1 ) and operates "Para Para" carbon button 4b of remote control 4 ( drawing 3 ) first (step 100), the Para Para information that it is reproduced from the initiation section (step 101), and PARAPARA truck section 2b of a video CD 2 is reproduced from there will be displayed on the display screen of a display 3 ( drawing 1 ), and will serve as the Para Para playback mode. With this, 1d of system control sections reads the starting address of the header of the packet currently reproduced, and the starting address of a partition with the Maine truck corresponding to this one by one.

[0038] Although playback of \*\*\*\* will be completed at last if the Para Para playback mode to which the repeat display of the Para Para information is carried out to the last of PARAPARA truck section 2b as it is continues While reproducing the meantime ( drawing 4 (b)) b, for example, a packet Supposing "playback" carbon button 4a ( drawing 3 ) is operated (step 103) The starting address p1 in the packet b currently then reproduced is stored in memory 1d2 ( drawing 1 ) (step 104), the control information according to the

starting address  $m_1$  of the partition B in the Maine truck is formed, and it sends to drive control-section 1e. Thereby, drive control-section 1e controls disk drive 1a, moves an optical head (not shown) to the place of the address  $m_1$  of Maine truck section 2a of a video CD 2 (step 106), and reproduces the partition B of real image information from there (step 107). This becomes the usual playback mode as which real image information is displayed on the display screen of a display 3 from initiation of Partition B (step 107).

[0039] then, although a playback mode will usually be completed if Maine truck section 2a is reproduced to the last as it is, and the real image information of one story including this partition B finishes being reproduced or -- By the middle, if "Para Para" carbon button 4b ( drawing 3 ) is operated during playback of the partition D for example, in the Maine truck ( drawing 4 (c)) The address reproduced from the Maine truck at that time ( $m_3 + \alpha$ ) It is incorporated by CPU1d1 whose (however,  $m_3 + \alpha < m_4$ ) is 1d of system control sections (step 109). Moreover, disk drive 1a is controlled based on the starting address  $p_1$  of the packet b stored in above memory 1d2, and an optical head is moved to the start point of the packet b of a PARAPARA truck ( drawing 4 (b)) (step 110).

[0040] And it becomes the Para Para playback mode which starts playback from the initiation part of Packet b about this PARAPARA truck. Then, the starting addresses  $m_1$  and  $m_2$  of each partition of each packets b and c by which sequential playback is carried out, and the Maine truck of .... included in a header ( drawing 4 (a)), and .. are detected (step 111). If a sequential comparison is carried out with the address ( $m_3 + \alpha$ ) in the partition D incorporated previously (step 112), a starting address is set to  $m_4$  and it becomes more than the address ( $m_3 + \alpha$ ) From the starting address  $p_4$  of the PARAPARA truck at this time therefore, presenting of the Para Para information is made to start from playback of Packet d, and it becomes the Para Para playback mode (step 113,114).

[0041] Then, if there is no actuation of "playback" carbon button 4a and PARAPARA truck section 2b is reproduced to the last, the Para Para playback mode will be completed, but if there is actuation of "playback" carbon button 4a between them, the actuation from step 103 will be repeated

again and it will usually become a playback mode.

[0042] In addition, although there will be some time amount by the time it moves from the repeat display of the real image information from the Maine truck to the repeat display of the Para Para information by actuation of "Para Para" carbon button 4b, a frame memory is prepared in a display 3 ( drawing 1 ), and the frame of real image information just before [ which remains in this frame memory ] a playback mode usually finishes is repeated and displayed, and it may be made to indicate by the still picture in the meantime. Therefore, when the playback for presenting of the new Para Para information is started in this case, the Para Para information will be succeedingly displayed from this static image. This is also the same as when switching from the repeat display of the Para Para information to the repeat display of real image information.

[0043] Moreover, although the starting address of the partition corresponding to the header of each packet in a PARAPARA truck in the real image information in the starting address and the Maine truck shall also be recorded and only the address of itself shall be recorded on the Maine truck in the above explanation You may make it record these partitions A, B, C, D, and E, the packets a, b, c, d, and e corresponding to .., the starting addresses p0, p1, p2, p3, and p4 of .., and .. on each partitions A, B, C, D, and E of the real image information in the Maine truck, and the header in initiation of .... In this case, for example, the starting address p0 of the packet a corresponding to this partition A is also recorded on the header of the head of Partition A with the starting address m0 of this partition A. Therefore, instead of being steps 109-112, when 1d of system control sections incorporates and holds the starting address of the packet in the PARAPARA truck corresponding to this by initiation of each partition during processing of steps 104-107 in drawing 5 and "Para Para" carbon button 4b is pushed (step 108 of drawing 4 ), an optical head is moved based on this incorporated starting address, and playback of the Para Para information can be started from the packet of this starting address.

[0044] Drawing 6 is drawing showing the example of a display in the display screen of the display 3 in drawing 1 .

[0045] While carrying out the repeat display of the image information from the video CD 2, it may be hard to distinguish whether this image currently displayed is the Para Para information or it is real image information.

[0046] So, with this 1st operation gestalt, if a this "mode check" carbon button is operated when a predetermined manual operation button (for example, "mode check" carbon button) is prepared in remote control 4 ( drawing 3 ) and the Para Para information is displayed on display screen 3a, as shown in drawing 6 (a), it will be made to perform that it is "under [ Para Para information playback ]" saying character representation. And when a this "mode check" carbon button is operated again, it is made for this alphabetic character to disappear.

[0047] Character representation that moreover, display PICT 5 with the above-mentioned alphabetic character, or the Maine information (real image information) is further seen with "playback carbon button as shown in drawing 6 (b)" can also be performed. Of course, as shown in drawing 6 (c), character representation "the Para Para information can be seen by the PARAPA lab tongue" can also be performed by operating the above-mentioned "mode check" carbon button during the repeat display of real image information.

[0048] In addition, drawing 6 (a), (b), and (c) show neither real image information nor the Para Para information.

[0049] As mentioned above, the function same with turning over publications, such as a journal, with Para Para and seeing them with this 1st operation gestalt, is obtained, and The function same with choosing this Para Para turning over and one-sheet turning over as arbitration will be obtained. Moreover, by this The contents, such as the story of the image information stored in the video CD, can be grasped roughly and promptly, and it becomes possible to discover promptly the image information of the title considered as a request.

[0050] Next, drawing 7 - drawing 12 explain the 2nd operation gestalt of the disk regenerative apparatus using the disk-like record medium and this by this invention.

[0051] As the disk unit of this 2nd operation gestalt and the video CD 2 which is the disk-like record medium which is making the configuration shown in



drawing 1 , and is used for this were shown in drawing 2 , Maine truck section 2a and PARAPARA truck section 2b are prepared. However, as remote control 4 is shown in drawing 12 , "menu" carbon button 4c other than "Para Para" carbon button 4b shall be prepared.

[0052] Although the real image information of the various contents is recorded on Maine truck section 2a ( drawing 2 ) of a video CD 2, these real image information is mutually classified according to the hierarchical relationship (henceforth a transition tree structure) of a tree structure.

[0053] Drawing 7 shows one of them and makes the top image information P1 of a transition tree structure, and image information P2, P3, P4, and P8 in the branch point menu image information, and two or more predetermined selections are prepared so that one of the requests can be chosen from two or more image information.

[0054] Here, by the menu image P1, 3. 2. three selections "1. ticket information", "town news", and "event information" shall be established. And if the ten key of remote control 4 ( drawing 12 ) is operated and "1. ticket information" is chosen If the selections which can choose the image information which the menu image P2 is displayed, for example, introduces one ticket of 3. 2. "1. a film", "music", and "theater" are prepared and "2. town news" is chosen If the selections which the menu image P4 is displayed, for example, can choose one introduction image information of 3. 2. "1. the town of O\*\*", "the town of Ox", and "a station watch" are prepared and "3. event information" is chosen The selections which the menu image P3 is displayed, for example, can choose either introduction image information of 2. "1. a sport" and the "OO hall" are prepared. Moreover, when "2. music" is chosen by the menu image P2, first, the introduction image P7 of "CD information" shall be displayed, and the menu image P8 with which 2. selections "1. a Western music hit" and a "Japanese music hit" were prepared following this shall be displayed.

[0055] Although such real image information and menu image information are recorded on Maine truck section 2a ( drawing 2 ) of a video CD 2, the Para Para information corresponding to these real image information or each menu image information is also classified according to the same hierarchical

relationship shown in drawing 7 , and is recorded on PARAPARA truck section 2b ( drawing 2 ) of a video CD 2.

[0056] Drawing 8 shows some Maine trucks with which real image information etc. is recorded, and the PARAPARA truck with which the Para Para information corresponding to this is recorded, and shows the part on which the menu image information P2 and the real image information P5 in drawing 7 are recorded here.

[0057] Although the Para Para information over real image information is the same as the case of the 1st operation gestalt explained previously, giving a predetermined time indication of the Para Para information over menu image information according to the contents of information, such as the number of the selections, is recorded. It is for taking long time amount to understand each selections, so that this has many selections. However, it will become very troublesome, when a menu is unnecessarily displayed for a long time by the Para Para playback mode and this is a menu image without the need. Therefore, even if the display period of the menu image in the Para Para playback mode is long, it is made into about several seconds. For example, in drawing 8 , although one packet of the Para Para information is the information for about 1 second, the Para Para information over the menu image information P2 consists of three packets here, considering three selections being prepared, therefore for [ about 1 second x ] 3= 3 seconds is made, as for this Para Para information, to be displayed.

[0058] Moreover, although the repeat display of the Para Para information from PARAPARA truck section 2b ( drawing 2 ) will be performed with this 2nd operation gestalt if "Para Para" carbon button 4b of remote control 4 ( drawing 12 ) be operated, in the above-mentioned transition tree structure, the playback sequence of the menu image information at that time or the Para Para information be surrounded with a circle which meet the arrow head shown in drawing 9 (a), and be made into numerical sequence.

[0059] Namely, although the menu image P1 will be displayed for about 3 seconds and it will not illustrate by drawing 9 probably at this time if drawing 7 is also referred to, a video CD 2 is set and "Para Para" carbon button 4b is operated, frame-like cursor is given to selections "1. ticket information", next

the menu image P2 to these selections is displayed for about 3 seconds. Frame-like cursor is given to selections "1. a film", and the Para Para image of the image P5 of the ticket information on the road show of a film is expressed as this menu image by this. And after the Para Para image of the image P6 of the ticket information on the revival of a film is displayed on a degree and this finishes, it moves to the repeat display of a most near and the thing in which the item which is not chosen yet remains, i.e., the Para Para information on the menu image P2, among the menu images of the transition tree structure high order of this image P6.

[0060] In the display for about 3 seconds of the Para Para image of this menu image P2, the cursor of the shape of a selections "music" frame of a degree is attached, next the Para Para image of the image P7 of CD information is displayed. [ 2. ] After this display finishes, the Para Para image of the menu image P8 with which 2. selections "1. a Western music hit" and a "Japanese music hit" were expressed, and frame-like cursor was given to selections "1. a Western music hit" is displayed for 3 seconds from about 2 seconds. And next, the Para Para image of the real image P9 of a "Western music hit digest" is displayed, and after returning to the display of the Para Para image of the menu image P8 with which frame-like cursor was given to "2. the Japanese music hit", the Para Para image of the real image P10 of a "Japanese music hit digest" is displayed.

[0061] Since there is no item which is not chosen by the menu image P8 when this Para Para image finishes being displayed Move to the display for about 3 seconds of the menu image P2 like moreover, and it is made the same. Since all selections were chosen by the menu image P2 after it progressed to the display of the real image P11 of a "theater schedule", and the Para Para image of real image P12 each of a "theater ticket" and it finished, it moves to the display of the menu image P1 of the high order. At this time, frame-like cursor is given to selections "3. event information", and the display of the menu image P3, the real images P13, P14, and P15, the menu image P3, the real image P16, and the Para Para image of P17 each is performed in order similarly. Thus, a playback mode is canceled after the display of the Para Para image of the last real image P23 finishes.

[0062] Drawing 9 (b) shows a part of above display order.

[0063] In PARAPARA truck section 2b, menu image information and real image information are recorded in order of the above-mentioned playback.

Drawing 8 shows that the Para Para information on the real image P5 over these selections "1. a film" is recorded following the Para Para information on the menu image P2 that frame-like cursor was given to selections "1. a film."

[0064] Here, although record of the address in each truck of real image information and its Para Para information is the same as that of the 1st previous operation gestalt, about menu image information, the same starting address with which this menu image is recorded on the header of three packets to it is recorded. In drawing 8 , since a starting address is the packet of the Para Para information on the same menu image information A of m0 (menu image P2), as for three packets a0, a1, and a2, the same address m0 as the header of these packets a0, a1, and a2 is also recorded.

[0065] Next, drawing 10 and drawing 11 explain actuation of this 2nd operation gestalt.

[0066] In drawing 10 , if a video CD 2 is set to disk drive 1a ( drawing 1 ) and "Para Para" carbon button 4b of remote control 4 ( drawing 12 ) is operated (step 200), disk drive 1a will display the sequential Para Para image, as it reproduces from that head (step 201) and drawing 9 explained the truck of PARAPARA truck section 2b ( drawing 2 ) of this video CD 2 to the display screen of a display 3 ( drawing 1 ) (step 202). Whenever each packet of a PARAPARA truck is reproduced in the meantime, the starting address of this packet currently recorded on that packet and the starting address of the above-mentioned partition with the Maine truck corresponding to this packet are detected. And after playback of this PARAPARA truck section 2b finishes (step 203), the repeat display mode of this Para Para image is canceled.

[0067] The inside of the Para Para playback mode which reproduces the packet c in the PARAPARA truck in now, for example, drawing 8 , If "playback" carbon button 4a of remote control 4 ( drawing 12 ) is operated (step 203) 1d of system control sections incorporates the starting address p4 of this packet c, and they store it in memory 1d2. A judgment of that this packet c is not a packet of a menu image reads the starting address m2 of the

partition C of the real image P5 corresponding to the packet c detected simultaneously with this starting address p4 (step 206). (step 205) And drive control-section 1e is controlled and playback of the Maine truck is made to start from this starting address m2 of Maine truck section 2a ( drawing 2 ) (step 207). Thereby, a repeat display is performed from the partition C of the real image P5 (step 208). If this playback is then continued, after playback of the real image P5 or playback of the real images P5 and P6 will finish (step 209), it returns to the menu screen P2 of the Maine truck.

[0068] The inside of the usual playback mode by which the real image information P5 is reproduced from Maine truck section 2a, For example, if "Para Para" carbon button 4b ( drawing 3 ) of remote control 4 ( drawing 12 ) is operated during playback of the partition D in drawing 8 (step 209) and the address at that time is set to  $(m3+\alpha)$  1d of system control sections stores this address  $(m3+\alpha)$  in memory 1d2 (step 210). Moreover, the starting address p4 stored previously is read from memory 1d2. Disk drive 1a is controlled by drive control-section 1e, and it is the record location (here) of this starting address p4 in a PARAPARA truck. An optical head is moved till the starting address m2 of Partition C being recorded (step 211). And the starting address mn of each partition of the real image information currently recorded on the header of each packet while moving an optical head to a high speed is read (step 212). This is continued until this read starting address mn (n in however, this case two or more integers) is set to the previous address  $(m3+\alpha)$  and  $mn \geq m3+\alpha$ . In this case, since it is satisfied with  $n=4$  of this, if a starting address m4 is reproduced, playback of a PARAPARA truck will be started from the packet e of the starting address p6 with which this is recorded (the Para Para image to the partition E of the real image P5) (step 214), and presenting of the Para Para information that it explained by drawing 9 will be made in the display screen of a display 3 from the Para Para image to the partition E of the real image P5.

[0069] If "playback" carbon button 4a of remote control 4 ( drawing 12 ) is not operated after an appropriate time (step 203), the repeat display of the last Para Para information is carried out, a playback mode is canceled, but if "playback" carbon button 4a is operated when the desired Para Para image is

displayed (step 203), actuation from step 204 will be performed again.

[0070] "Playback" carbon button 4a is operated in the playback condition of the Para Para image (step 203), and it is supposed that the Para Para image at that time was the Para Para image of a menu image (step 205). At next, this time Supposing it is reproducing the part of the packet a1 of the menu image P2 of a PARAPARA truck, 1d of system control sections The starting address p1 of this packet a1 and the starting address m0 of the record section of the menu image P2 which were detected in drawing 11 when playback initiation of this packet a1 was carried out are incorporated (step 216). Disk drive 1a is made to control that drive control-section 1e is also, and an optical head is moved to the location of the address m0 of the Maine truck (step 217), and the above-mentioned addresses m0 and p1 are stored in memory 1d2 (step 218).

[0071] Thereby, the repeat display of the menu image P2 as a real image is carried out (step 219). If it continues until this display has assignment of the selections by the ten key of remote control 1 ( drawing 12 ), and there is assignment of request selection \*\*\*\*\* (step 220), the repeat display of the real image (for example, real image P5 of a "film road show [ 1. ]" ticket) to these selections will be carried out by Maine truck section 2a (step 221). Here, if "menu" carbon button 4c of remote control 4 ( drawing 12 ) is operated during the repeat display of this real image (step 222), and after the repeat display of this real image is completed although not shown in drawing 11 , the repeat display of the menu image P2 of a basis is carried out (step 219).

[0072] In addition, when the menu image is displayed and "menu" carbon button 4c is operated, it is made for a display to switch to the menu image of one high order rather than the menu image by which it is indicated by current. For example, in drawing 7 , if "menu" carbon button 4c is operated when the menu image P8 as a real image is displayed, the menu image P2 of the high order will come to be displayed, and if "menu" carbon button 4c is operated further, the menu image P1 will come to be further displayed on a high order.

[0073] Although the repeat display of the menu image P2 or the real image P5 continues if neither "menu" carbon button 4c nor "Para Para" carbon button 4b is operated When "Para Para" carbon button 4b is operated in this condition

(step 223), 1d of system control sections reading appearance of the address p1 of the PARAPARA truck previously stored in memory 1d2 is carried out, disk drive 1a is controlled based on this, and an optical head is moved to the location of the address p1 of a PARAPARA truck (step 224).

[0074] And if the address m0 of the Maine truck currently recorded with this is detected from the part on which this address p1 is recorded (step 225), 1d of system control sections Since this address is equal to the address m0 previously stored in memory 1d2 at step 218 (step 226) If it shifts to the address position in front of one and the address of a there is detected rather than this address m0 (step 225, step 226) After the next address m0 of this detected address, i.e., the address, is detected (step 227), the repeat display of the Para Para information is started (step 228). Thereby, presenting of the Para Para information is started from the recording start location of the Para Para information on the menu image P2 (step 229). (from initiation of a packet a0)

[0075] Then, in drawing 10 , if there is no actuation of "playback" carbon button 4a of remote control 4 ( drawing 12 ), a playback mode will be canceled with playback termination of the Para Para information, but if actuation of "playback" carbon button 4a is made, actuation from step 203 will be performed again.

[0076] It can see promptly, without one omitting no image information which includes menu image information with this 2nd operation gestalt as mentioned above and which is recorded the same with regarding a journal etc. as the Para Para \*\*, and can know what kind of image information is recorded on the video CD 2 in a short time.

[0077] Moreover, even if the same image information as such Para Para turning over displays When the image information of the request in it is displayed, this can be made into the usual repeat display condition only by operating "playback" carbon button 4a. Can search request image information promptly and it sets to presenting of the same image information as the Para Para turning over. Since it can consider as the usual playback condition from a menu image and selection of a menu image can also be promptly performed by actuation of "playback" carbon button 4a, retrieval of the request real

image information from this menu image can also be performed promptly.

[0078] In addition, the Para Para information is reproduced in the operation gestalt of the above 2nd. For example, when the real image P5 of the "film road show" in drawing 7 is found out, this is reproduced from the Maine truck, a repeat display is carried out in the state of the usual playback, it finishes seeing this and you want to look for the real image information of other requests further, [ 1. ] Again, as shown in drawing 9 , the Para Para information may be reproduced from the top menu image P1. in such a case, the image of P5 once seen as a real image -- already -- it is not necessary to see -- such Para Para information -- flying -- playback -- it can also be made like. 1d of system control sections holds the address of the packet of this Para Para information, and this should just fly the packet of this held address at a high speed at the time of the Para Para playback mode, for example. Of course, what is necessary is just to display this period and the playback image in front of that with a still picture, for example, although playback in this part breaks off.

[0079] Moreover, with each above-mentioned operation gestalt, as what all real image information and the Para Para information over this are recorded on the video CD of one sheet, as shown in drawing 13 Maine truck section 4a is formed over the video CDs 41, 42, and 43 of two or more sheets, and .... Real image information is recorded on this, PARAPARA truck section 4b is prepared in the video CD 41 of one sheet of them, and the Para Para information on these real image information may be made to be recorded. In this case, these video CDs 41, 42, and 43 and the autochanger which chooses .... automatically are formed.

[0080]

[Effect of the Invention] As explained above, according to this invention, to a disk-like record medium with two or more real image information of the various contents of information Since the Para Para information on the compaction version showing an epitome, an outline, etc. of these real image information is recorded The function same with regarding a journal etc. as the Para Para \*\* by carrying out sequential playback of this is obtained. Become possible to grasp promptly and exactly the content of the huge image



information currently recorded on the disk-like record medium, and It can do, when [ at which the Para Para playback mode which carries out sequential playback of the Para Para information, and real image information are reproduced ] a change with a playback mode is usually arbitration, and moreover the content of information in this change event can be made to continue mostly, and sense of incongruity is not given to a user.

[0081] Moreover, according to this invention, it can carry out the repeat display of the Para Para information corresponding to all real image information in predetermined sequence also including menu image information, and at the time of the display of this menu image, it can usually reproduce desired real image information by the playback mode from the selections, and it not only can grasp all the contents currently recorded on the disk-like record medium, but can search request real image information with the Para Para playback mode promptly.

[0082] Furthermore, when a change with a playback mode can usually be performed with the Para Para playback mode at the event of arbitration and it searches the real image information of two or more requests, retrieval of the real image information of the next request can be performed only by making it usually shift to the Para Para playback mode from a playback mode, and time and effort cannot be taken, but it can carry out promptly.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the operation gestalt of the disk regenerative apparatus by this invention.

[Drawing 2] It is drawing showing the record section of the real image information in a video CD, and the Para Para information shown in drawing 1 .

[Drawing 3] It is the top view showing one example of the selection decision input means in drawing 1 in the 1st operation gestalt of this invention.

[Drawing 4] It is drawing showing a record format with the Maine truck of a video CD and PARAPARA truck in drawing 1 in the 1st operation gestalt of this invention.

[Drawing 5] It is the flow chart which shows actuation of the 1st operation gestalt of this invention.

[Drawing 6] It is drawing showing the example of the display image in the display in drawing 1 .

[Drawing 7] It is drawing showing one example of the hierarchical relationship of the image information currently recorded on the video CD in the 2nd operation gestalt of the disk regenerative apparatus by this invention.

[Drawing 8] It is drawing showing a record format with the Maine truck of a video CD and PARAPARA truck in drawing 1 in the 2nd operation gestalt of this invention.

[Drawing 9] It is drawing showing the playback sequence of the Para Para information in the hierarchical relationship shown in drawing 7 in the 2nd operation gestalt of this invention.

[Drawing 10] It is the flow chart which usually indicates transfer operation with a playback mode to be the Para Para playback mode of the 2nd operation gestalt of this invention.

[Drawing 11] It is the flow chart which shows the actuation at the time of specifying a menu image by the Para Para playback mode of the 2nd operation gestalt of this invention.

[Drawing 12] It is the top view showing one example of the selection decision input means in drawing 1 in the 2nd operation gestalt of this invention.

[Drawing 13] It is drawing showing the case where the disk-like record medium used for the disk regenerative apparatus by this invention is made into two or more 1 sets.

[Description of Notations]

1 Body of Disk Regenerative Apparatus

1a Disk drive

1b Decryption section

1c D-A conversion section

1d System control section

1d1 Memory

1d2 CPU

1e Drive control section

2 Video CD

2a Maine truck section

2b PARAPARA truck section

3 Display

3a Display screen

4, 41, 42, 43 Selection decision input means (remote controller)

4a "Playback" carbon button

4b "Para Para" carbon button

4c "Menu" carbon button

5 PICT

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